

# **Notice of Allowability**

Application No.

10/664,973

Examiner

Donald R Wilson

Applicant(s)

CHINO ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/22/03
2. ☒ The allowed claim(s) is/are 21,22,24,25 and 27.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☒ Certified copies of the priority documents have been received in Application No. 09/663,845.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.
    - (a) ☐ The translation of the foreign language provisional application has been received.
  6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.
- Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**
7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_
    - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_ which has been approved by the Examiner.
    - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_

Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## **Attachment(s)**

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|--|---|
| <ol style="list-style-type: none"> <li>1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB-08), Paper No. <u>9/22/03</u></li> <li>4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____</li> <li>7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment</li> <li>8 <input type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9 <input type="checkbox"/> Other</li> </ol> |
|--|---|

*DRW*  
Donald R Wilson  
Primary Examiner  
Art Unit: 1713

**EXAMINER'S COMMENT/AMENDMENT/REASONS FOR ALLOWANCE**

***Examiners Amendment***

1. An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. § 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the Issue Fee.

- a. Replace Claims 21, 22, 24, 25 and 27 with the following:

"21. A method for making a rubber bonded body by adhering a first vulcanized rubber layer to a second vulcanized rubber layer using a thermo-reversible, crosslinkable elastomer comprising the steps of: applying the thermo-reversible, crosslinkable elastomer to the first rubber layer, applying the thermo-reversible, crosslinkable elastomer to the second rubber layer and adhering the first layer the second layer to form a bonded product, wherein the thermo-reversible, crosslinking elastomer capable of reversibly causing dissociation and formation of a crosslinked structure by temperature change in which a hydrogen bond reaction between nitrogen-containing heterocycles is utilized for crosslinking is used as an adhesive."

"22. The method of claim 21, further comprising the steps of: heating the bonded body, and dissociating the first layer from the second layer."

"24. A method for recycling a product, said product comprising: a first vulcanized rubber layer and a thermo-reversible, crosslinking elastomer layer capable of reversibly causing dissociation and formation of a crosslinked structure by temperature change in which a hydrogen bond reaction between nitrogen-containing heterocycles is utilized for crosslinking; and comprising the step of: heating the product; whereby the first layer can be dissociated from the thermo-reversible, crosslinking elastomer."

"25. The method of recycling of claim 24, wherein the product comprises more than two layers and at least one layer is the thermo-reversible, crosslinking elastomer."

"27. A method for recycling a product, said product having at least one thermo-reversible, crosslinking elastomer layer and at least one vulcanized rubber layer,

comprising the step of: heating the product; whereby the product layer can be dissociated from the thermo-reversible, crosslinking elastomer layer."

- b. Cancel Claims 23 and 26.
- c. Amend the title to read as follows:

"METHODS OF MAKING AND RECYCLING RUBBER BODIES BONDED WITH A THERMO-REVERSIBLE, CROSSLINKABLE ELASTOMER".

- 2. Authorization for this examiner's amendment was given in a telephone interview with Mr. Robert S. Greene on 1/14/04.

***Reasons For Allowance***

- 3. The following is an Examiner's Statement of Reasons for Allowance:
- 4. This application is a division of application No. 09/663,945, now abandoned. The instant application is directed to methods for making rubber bonded bodies comprising a vulcanized rubber layer and a thermo-reversible, cross-linkable elastomer wherein said elastomer is capable of forming or dissociating a cross-linked structure by means of a temperature change. The cross-links are the result of hydrogen bond formation with nitrogen-containing heterocycles. Methods of recycling products containing a vulcanized rubber layer bonded with a thermo-reversible, cross-linkable elastomer layer are also claimed. In the parent application claims to just the thermo-reversible, crosslinkable elastomer were found not to be allowable over Tasaki. However, no prior art has been found which discloses or suggests the instantly claimed methods of making or recycling rubber bonded bodies.
- 5. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Art of Interest/Technological Background***

- 6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Augustin is cited as being of interest as background art in that it teaches bonding methods employing thermo-reversible cross-linking adhesives. The cross-linking is based upon a thermoreversible reaction

Art Unit: 1713

between a carboxylic acid bearing polymer and a divinyl ether, as opposed to the H-bonding with nitrogen-containing heterocycles in the instant application.

*Future Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D.R. Wilson whose telephone number is 703-308-2398.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.



D. R. Wilson  
Primary Examiner  
Art Unit 1713